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Name of Principal Author and all other author(s):
Robert J. Anderson

Principal Author's Organization and address:	Phone: (850) 882-6700 x7518
Joint Fires Integration and Interoperability Team (JFIIT)	Fax: (850) 882-8467
104 Biscayne Road, Bldg 637	Email: john.anderson3.ctr@eglin.af.mil
Eglin AFB, FL 32542-5310	

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Use of DoD Architectural Framework in Support of JFIIT Assessments

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Joint Fires Integration and Interoperability Team (JFIIT)

Use of DoD Architectural Framework in Support of JFIIT Assessments

John Anderson, SAIC
Senior Analyst

Agenda

- JFIIT Background
- Assessment Strategy
- Sample Assessment Execution
- Conclusion

JFIIT Mission

Improve the integration, interoperability, and effectiveness of Joint fires, focused at the tactical level.

- **JFIIT is a subordinate, functional command of U.S. Joint Forces Command**

- **JFIIT mission complements USJFCOM J7/J8/J9 joint fires and combat identification efforts at the operational level**

JFIIT Team

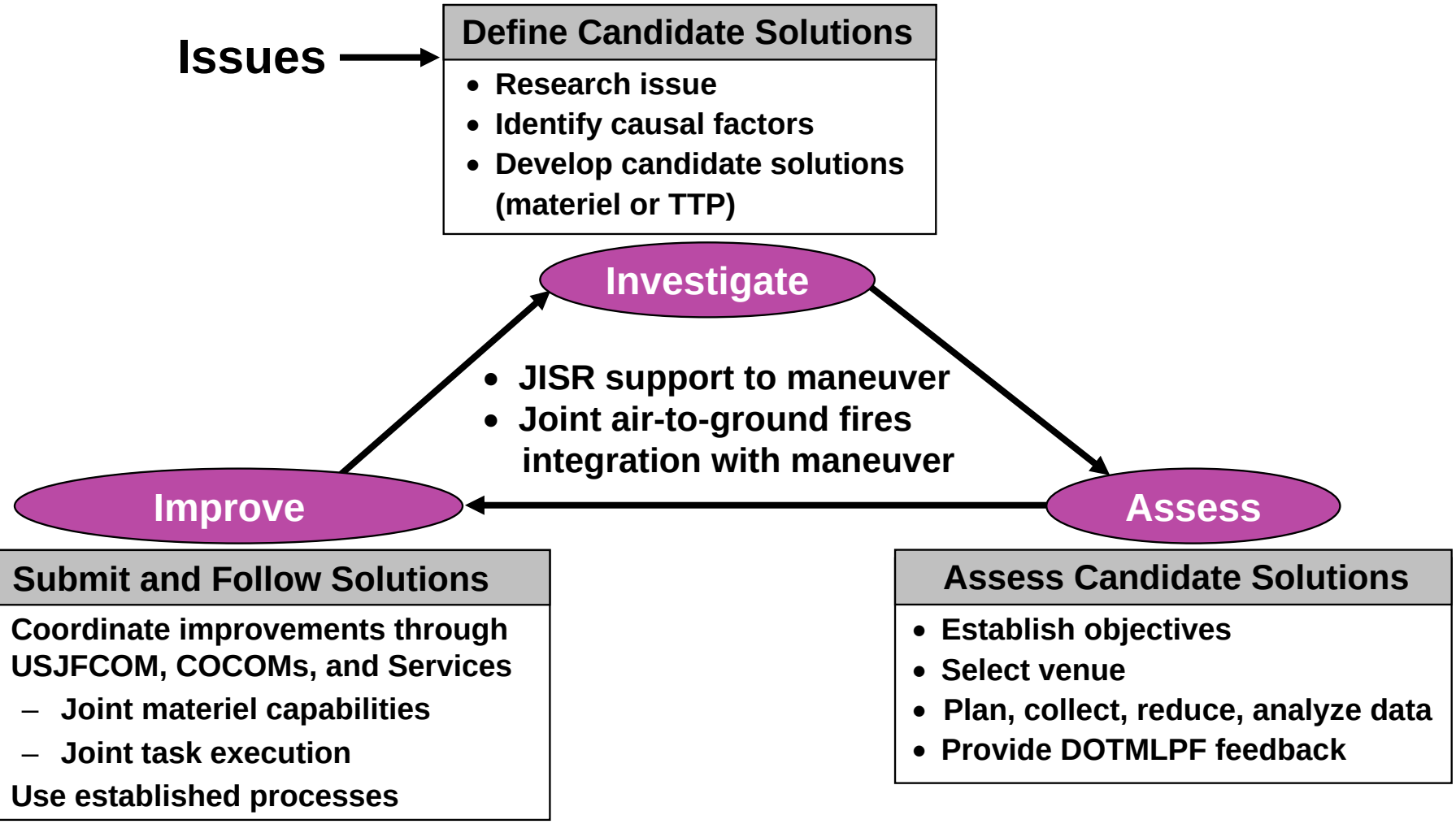
- **Personnel**
  - Active uniformed 35
  - Reserve component 0
  - DOD civilian 6
  - Contractors 89
- **Facilities**
  - Eglin AFB, FL
  - Fort Irwin, CA

C2	Command and Control
FIST	Fire Support Team
FO	Forward Observer
FSCC	Fire Support Coordination Center
ISR	Intelligence, Surveillance, and Reconnaissance
JFO	Joint Fires Observer
JTAC	Joint Terminal Attack Controller
TACP	Tactical Air Control Party

JFIIT Core Strengths

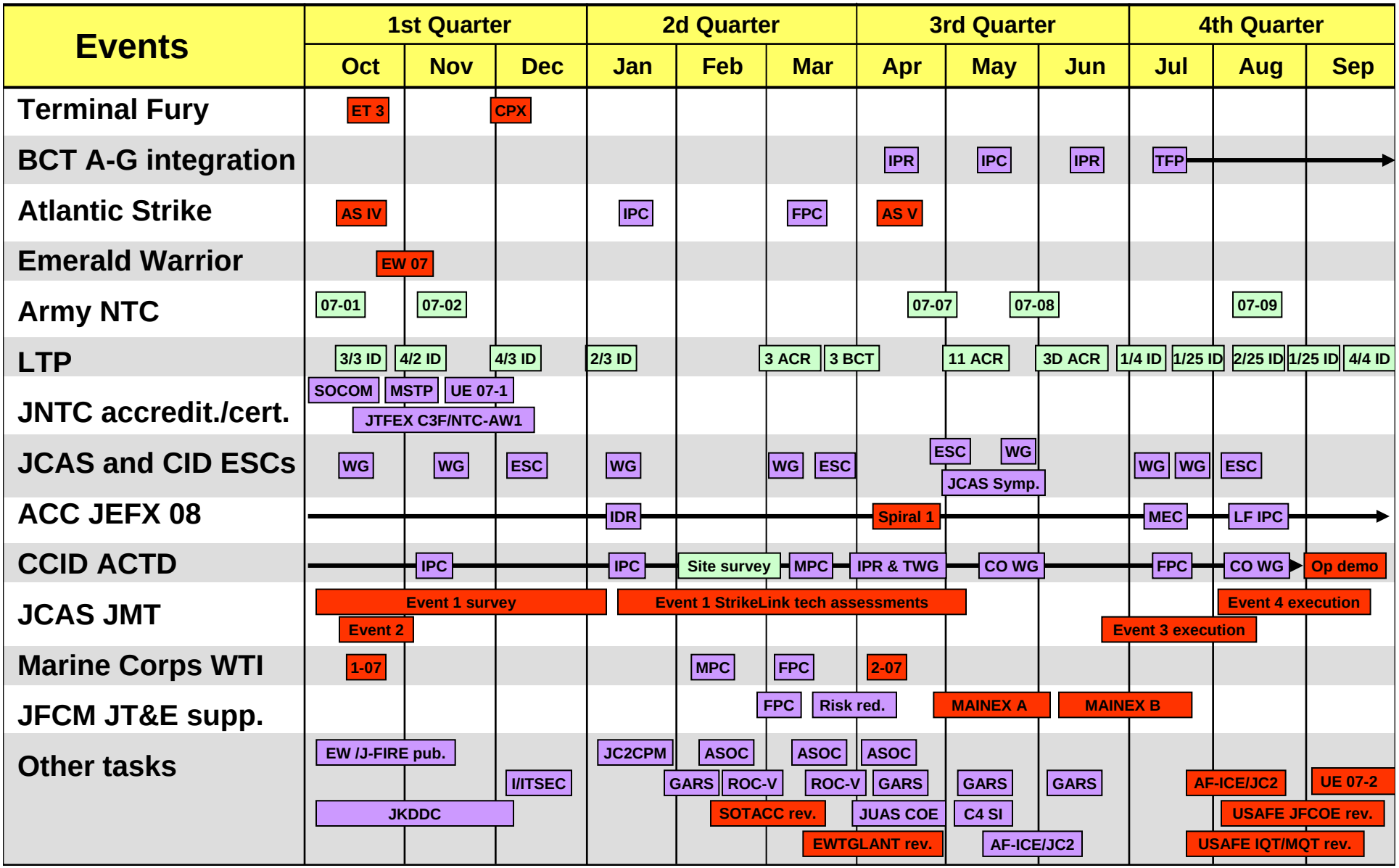
- **Operational Joint fires expertise**
  - Air to ground, ground to ground, air defense
  - Ground maneuver
  - Special operations
  - TACP/FSCC, JTAC/JFO, FO/FIST
  - Electronic warfare
  - Weapon system and data link
  - C2 and ISR
  - Observer/trainer
- **Analytical capabilities**
  - Tactical capability analysis
  - Joint task execution; training assessment
  - Joint interoperability expertise
  - Forte in live field exercise assessments
- **Technical skills**
  - Instrumentation
  - Networking and communications
  - Data collection, management, processing
- **Additional exercise expertise**
  - Scenario planning, range integration, and airspace management

JFIIT Improvement Process



COCOM	Combatant Command
DOTMLPF	Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities
JISR	Joint Intelligence, Surveillance, and Reconnaissance
TTP	Tactics, Techniques, and Procedures

JFIIT FY 07 Calendar



Note: **Acronyms listed in notes page.**

Legend:

Deployment **Event execution** **Joint meetings/conf.**

JFIIT Assessment Strategy

- Support breadth, depth and tempo of multiple assessments
- Rely on processes that include reusable assessment plan templates
- Templates incorporate conceptual models which involve
  - Joint Fires related Universal Joint Tasks (UJT)
  - Joint Task Articles (JTA)
  - DoDAF Operational Views (OV) and System Views (SV)
- Use conceptual models to rapidly develop analytical models, assessment CONOPS, and requirements for supporting instrumentation and data collection
- Capture lessons learned from model development and assessment execution
- Provide feedback from lessons learned to enhance JTAs and associated OV/SVs

Joint Fires Related Universal Joint Tasks (UJT) For JFIIT Assessment Purposes*

- TA 3.2.2, Conduct Close Air Support
- TA 3.2.1, Conduct Joint Fire [Support]
- TA 2, Share Intelligence;
- TA 2.0, Develop Intelligence
- TA 3.3, Coordinate Battlespace Maneuver & Integrate With Firepower
- TA 5, Exercise C2
- TA 6.5, Provide for Combat ID
- TA 5.2.1, Establish, Operate and Maintain Baseline Information Exchange

***https://jdeis.js.mil**
Find the Joint Training frame to the lower left of the page
Click on UJTL Portal
Click on JDEIS UJTL Database Search

***CJCSM 3500.04D, 1 Aug 2005, with Change 1, 15 Sep 2006, Universal Joint Task List (UJTL)**

JTAs

- Each UJT is described by a Joint Task Article (JTA) that includes
  - Task description: Critical Elements, Steps
  - Measures
  - Conditions
  - Joint and Service Doctrine references

Managed by JFCOM J7/JNTC

- Many UJTs are described by Extended JTAs (EJTAs) that include a DoD Architectural Framework
  - Operational Views (OV) – process: operator activities, information exchange
  - System Views (SV) – architecture: system functions, data exchange

Managed by JFCOM J89

- EJTAs can serve as starting points for plans, scenarios, check-lists, metrics, Integrated Data Requirements List (IDRL)

https://jdeis.js.mil
Find the Joint Training frame to the lower left of the page
Click on UJTL Portal
Click on UJTL Coordination and Staffing
Click on JTA Coordination Page

EJTA (TA) 3.2.2 Conduct Close Air Support

SERVICE COMMAND AND CONTROL NODES

OV-1

OV-2 - Army, Marine Corps, Air Force, Navy, SOF

OV-3 - Army, Marine Corps, Air Force, Navy

OV-4 - Army, Marine Corps, Air Force, Navy, SOF

OV-5

SYSTEMS INTERFACE/COMMUNICATIONS DESCRIPTIONS SV-1, SV-2A, SV-2B

JTF HQ COMMAND AND CONTROL NODES - OVs

JTF HQ COMMAND AND CONTROL OPERATIONAL IER MATRIX - IERs

Definition

To provide support for amphibious and/or land operations by air assets through attacking hostile targets in close proximity to friendly forces.

Background

Although close-air support (CAS) is conducted at the tactical level, it is linked to the operational level through the air apportionment and allocation process. CAS is planned and executed to accomplish military objectives assigned to tactical units or joint task forces. CAS planning focuses on the ordered arrangement and maneuver of combat elements in relation to each other and to the enemy in order to achieve combat objectives.

EJTA (TA) 3.2.2 Conduct Close Air Support

CRITICAL ELEMENTS

E1 Operational Planning/Information

E2 Tactical Planning

E3 Tactical Preparation

T1 Ensure maneuver force preparation process includes JCAS in appropriate rehearsals.

T2 Ensure operations center rehearsals include the following:

a) ROE review.

b) Fire support coordination measures (FSCM).

c) Airspace control measures (ACMs).

d) Type of control and procedures.

e) Communication plans.

f) Suppression of enemy air defenses (SEAD).

g) Target marks/friendly marking.

- **Steps included with Critical Elements E3 and E6**
- **Others not included for brevity**

E4 Communications

E5 Synchronization

E6 Execution

T1 Ensure that when CAS aircraft arrive on station, terminal controllers, other observers, surface fire support, and ACMs are ready and available to implement the ground commander's plan for CAS.

T2 Ensure the timing, sequencing and place of attack are coordinated within the joint force to achieve unity of effort and support the overall maneuver plan.

T3 Ensure sensor-to-shooter information transfer is smooth and timely.

T4 Ensure contacts are correctly identified:

a) Planners define means and time limits for identification determination.

b) Establish specific identification matrix and fratricide avoidance procedures.

E7 Battle Damage Assessments

E8 Battle Tracking

EJTA (TA) 3.2.2 Conduct Close Air Support

TASK MEASURES (M)

E1	**Operational Planning/Information**		
E2	**Tactical Planning**		
E3	**Tactical Preparation**		
	M1	Did the maneuver force preparation process include JCAS in appropriate rehearsals?	Yes
	M2	Did the operation center rehearsals include the following: a) ROE review? b) FSCMs? c) ACM? d) Type of control and procedures? e) ACAs and other de-confliction methods? f) Communication plans? g) SEAD? h) Target Marks? i) Friendly Marking?	Yes
E4	**Communications**		
E5	**Synchronization**		
E6	**Execution**		
	M1	Were terminal controllers, other observers, surface fire support, and ACMs ready and available to implement the ground commander's plan for CAS when CAS aircraft arrived on station?	Yes
	M2	Were timing, sequencing and place of attack coordinated within the joint force to achieve unity of effort and support the overall maneuver plan?	Yes
	M3	Was the sensor-to-shooter information transfer smooth and timely?	Yes
	M4	Were contacts correctly identified within allowable means and time limits and were specific identification matrix and fratricide avoidance procedures established?	Yes
E7	**Battle Damage Assessments**		
E8	**Battle Tracking**		

EJTA (TA) 3.2.2 Conduct Close Air Support

TASK CONDITIONS (C)

Physical Environment

C 1.1	C 1.1.1Land Terrain
C 1.1.1.6	Vegetation
C 1.1.3.1	Urbanization
C 1.3	Air
C 1.3.1	Climate
C 1.3.1.3	Weather
C 1.3.1.3.3	Surface Wind Velocity
C 1.3.2	Visibility
C 1.3.2.1	Light
C 1.3.3.2	Chemical Effects
C 1.3.3.3	Biological Effects
C 1.3.4	Airspace Availability

Military Environment

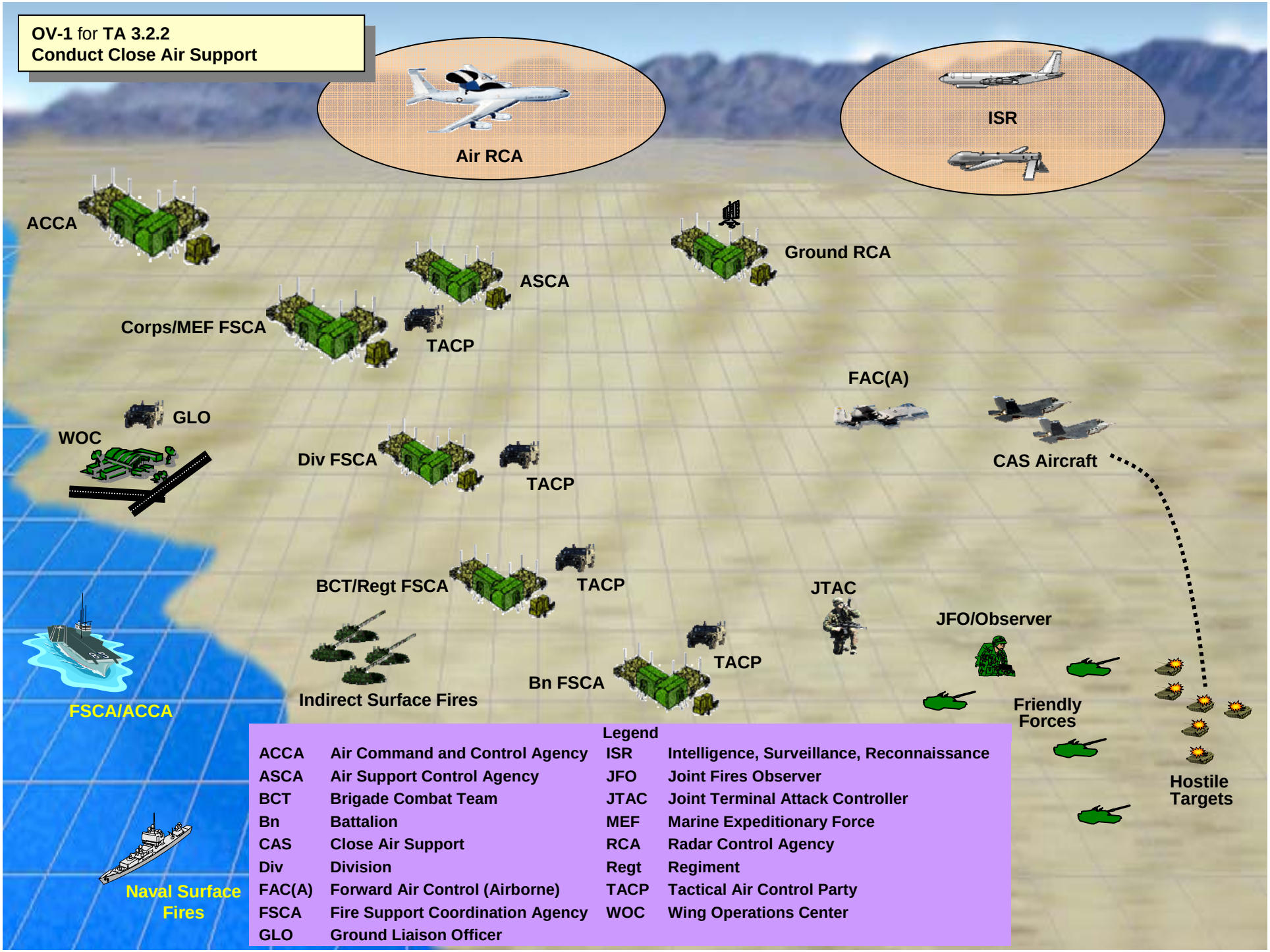
C 2.10.1	State of Conflict
C 2.10.3	Type of Conflict
C 2.2.4	Personnel Capability
C 2.2.4.5	Personnel Experience
C 2.3.1	Command Arrangements
C 2.3.1.10	Command Relationships
C 2.3.1.6	Communications Connectivity
C 2.6.1	Degree of Dispersion
C 2.6.5	Target Mobility
C 2.6.7	Collateral Damage Potential
C 2.7.2	Air Superiority

Steps to Enhance EJTA 3.2.2

- Develop/refine related OV/SVs
- Redefine Critical Elements and Steps with stronger links to OV/SVs
- Develop metrics to describe how well Critical Elements/Steps are performed
- Develop Integrated Data Requirements List (IDRL) to support metric calculation and capture related conditions
- Socialize with JFIIT, JFCOM and Joint Staff J7 for eventual posting to JDEIS UJTL portal

TA 3.2.2 OVs

Architectural Framework Status as of 8 May 07		
Product	**Product Name**	**Status**
OV-1	High-Level Operational Concept	Final Draft
OV-5	Activity Model	Initial Draft
OV-4	Organizational Relationships Chart	Conceptual w/Examples in Context
OV-6	Activity Sequence and Timing Descriptions	
OV-2	Node Connectivity Description	
OV-3	Information Exchange Matrix	


OV-1 for TA 3.2.2
Conduct Close Air Support
Air RCA
ISR
ACCA
Ground RCA
ASCA
Corps/MEF FSCA
TACP
FAC(A)
GLO
WOC
Div FSCA
TACP
CAS Aircraft
BCT/Regt FSCA
TACP
JTAC
JFO/Observer
TACP
Bn FSCA
Indirect Surface Fires
FSCA/ACCA
Friendly Forces
Hostile Targets
Naval Surface Fires
Legend
ACCA Air Command and Control Agency
ASCA Air Support Control Agency
BCT Brigade Combat Team
Bn Battalion
CAS Close Air Support
Div Division
FAC(A) Forward Air Control (Airborne)
FSCA Fire Support Coordination Agency
GLO Ground Liaison Officer
ISR Intelligence, Surveillance, Reconnaissance
JFO Joint Fires Observer
JTAC Joint Terminal Attack Controller
MEF Marine Expeditionary Force
RCA Radar Control Agency
Regt Regiment
TACP Tactical Air Control Party
WOC Wing Operations Center

TA 3.2.2, Conduct CAS
Building the OV-5

Nodes	Phases			
	Plan	Prepare	Execute	Assess
JTAC	X	X	X	X
CAS Aircrew	X		X	X
FAC(A)	X		X	X
JFO/Observer	X	X	X	X
TACP	X	X	X	
FSCA	X	X	X	X
ASCA	X		X	
GLO	X			
RCA			X	

TA 3.2.2, Conduct CAS
Building the OV-5

JTAC	
	Activity
Plan	**Conduct Planning**
Prepare	**Conduct Rehearsal**
Execute	**Coordinate with TACP/TOC/ASCA**
	Find/Fix/Track Target
	Coordinate with FAC(A)/CAS Aircrew
	Control CAS
Assess	**Conduct BDA**

TA 3.2.2, Conduct CAS
Building the OV-5

JTAC

	Activity
Plan	**Conduct Planning**
Prepare	**Conduct Rehearsal**
Execute	**Coordinate with TACP/TOC/ASCA**
	Find/Fix/Track Target
	Coordinate with FAC(A)/CAS Aircrew
	Control CAS
Assess	**Conduct BDA**

Sub-Activity: Type 2 Control

JTAC send CAS briefing

CAS aircrew verify target coordinates correlate expected target area

CAS aircrew read-back or confirm digitally Line 4 (elev), Line 6 (target location) and any restrictions

CAS aircrew provide IP INBOUND call

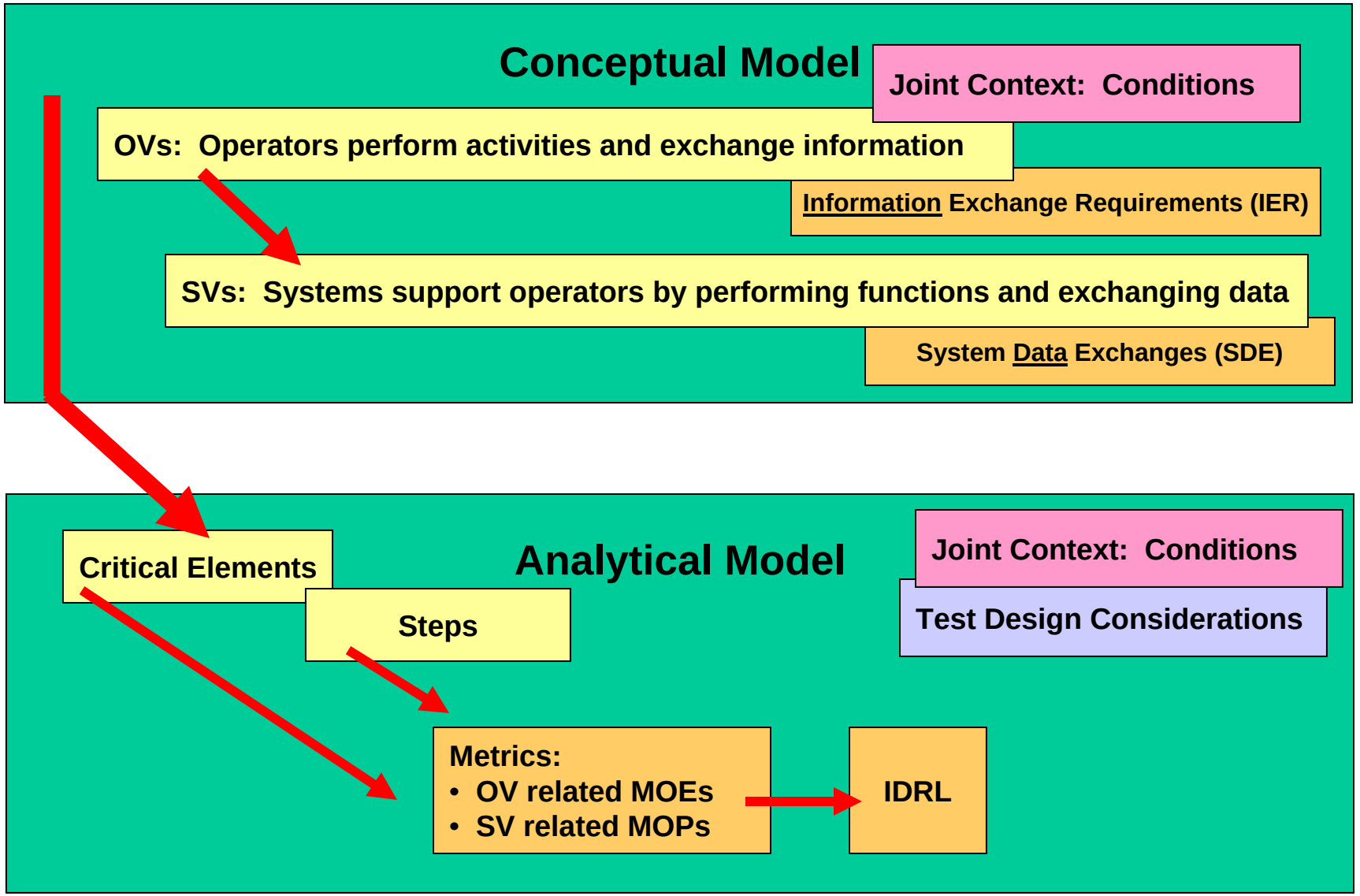
CAS aircrew provide an IN call indicating maneuvering for a targeting solution

JTAC provide CLEARED HOT or ABORT

TA 3.2.2 Conduct CAS OV-5

A.0 Conduct CAS	A1 Plan	A1.1 JTAC	A1.1.1 Conduct Planning
		A1.2 CAS Aircrew	A1.2.1 Receive information updates from the GLO regarding supported ground commander intent and related ground missions
		A1.3 FAC(A)	A1.3.1 Conduct Planning
		A1.4 JFO/Observer	A1.4.1 Conduct Planning
		A1.5 TACP	A1.5.1 Conduct Planning
		A1.6 FSCA	A1.6.1 Conduct Planning
		A1.7 ASCA	A1.7.1 Conduct Planning
		A1.8 GLO	A1.8.1 Provide information updates to FAC(A)/CAS Aircrew regarding supported ground commander intent and related ground missions
	A2 Prepare	A2.1 JTAC	A2.1.1 Conduct Rehearsal
		A2.2 JFO/Observer	A2.2.1 Conduct Rehearsal
		A2.3 TACP	A2.3.1 Conduct Rehearsal
		A2.4 FSCA	A2.4.1 Conduct Rehearsal
	A3 Execute	A3.1 JTAC	A3.1.1 Coordinate with TACP/TOC/ASCA
			A3.1.2 Find/Fix/Track Target
			A3.1.3 Coordinate with FAC(A)/CAS Aircrew
			A3.1.4 Control CAS
		A3.2 CAS Aircrew	A3.2.1 Coordinate with WOC/ACCA/ASCA/ACA
			A3.2.2 Coordinate with JTAC
			A3.2.3 Provide CAS
		A3.3 FAC(A)	A3.3.1 Coordinate with TACP/TOC/ASCA
			A3.3.2 Find/Fix/Track Target
			A3.3.3 Coordinate with JTAC/CAS Aircrew
			A3.3.4 Control CAS
		A3.4 JFO/Observer	A3.4.1 Find/Fix/Track Target
			A3.4.2 Coordinate with JTAC/TACP/TOC
		A3.5 TACP	A3.5.1 Coordinate with TOC
			A3.5.2 Coordinate with Other TACP/ASCA
			A3.5.3 Coordinate with JTAC
		A3.6 FSCA	A3.6.1 Integrate CAS with ground mission
		A3.7 ASCA	A3.7.1 Provide procedural control of CAS assets within supported GND CDR AO
			A3.7.2 Processe CAS requests
			A3.7.3 Control flow of CAS aircraft in and out of supported GND CDR AO
			A3.7.4 Integrate aircraft operating inside the FSCL using ACM/FSCMs
			A3.7.5 Manage JARN and allocated TAD frequencies
			A3.7.6 Coordinate other mission areas
			A3.7.7 Manage subordinate deployed TACPs
			A3.7.8 Assign and direct CAS aircraft, when authorized, to JTACs
		A3.8 RCA	A3.8.1 Provide Routing/Update Information to FAC(A)/CAS Aircrew
	A4 Assess	A4.1 JTAC	A4.4.1 Conduct BDA
		A4.2 CAS Aircrew	A4.2.1 Conduct BDA
		A4.3 FAC(A)	A4.3.1 Conduct BDA
		A4.4 FSCA	A4.4.1 Conduct BDA

Sample Assessment Structure



Sample Assessment Structure

JTAC

	Activity
Plan	Conduct Planning
Prepare	Conduct Rehearsal
Execute	Coordinate with TACP/TOC/ASCA
	Find/Fix/Track Target
	Coordinate with FAC(A)/CAS Aircrew
	Control CAS
Assess	Conduct BDA

Critical Element

Steps

Sub-Activity: Type 2 Control

- JTAC send CAS briefing
- CAS aircrew verify target coordinates correlate expected target area
- CAS aircrew read-back or confirm digitally Line 4 (elev), Line 6 (target location) and any restrictions
- CAS aircrew provide IP INBOUND call
- CAS aircrew provide an IN call indicating maneuvering for a targeting solution
- JTAC provide CLEARED HOT or ABORT

Sample Assessment Structure

Type 2 Control Steps

- JTAC send CAS briefing
- CAS aircrew verify target coordinates correlate with expected target area
- CAS aircrew read-back or confirm digitally Line 4 (elev), Line 6 (target location) and any restrictions
- CAS aircrew provide IP INBOUND call
- CAS aircrew provide an IN call indicating maneuvering for a targeting solution
- JTAC provide CLEARED HOT or ABORT

Measures of Effectiveness (MOE)

- Percent of controls where the JTAC sent a 9-line
- Average time for CAS aircrew to verify target coordinates
- Percent of controls where the JTAC provided CLEARED HOT
- Percent of controls effectively managed by the JTAC
- ...

Integrated Data Requirements List (IDRL) for Each Control

- Did the JTAC send a 9-line?
- Time that JTAC completed the 9-line
- Time that CAS aircrew verified target coordinates
- Did the JTAC provide CLEARED HOT?
- Did the CAS aircraft engage the correct target?
- ...

Sample Assessment Structure

Type 2 Control Steps

- JTAC send CAS briefing
- CAS aircrew verify target coordinates correlate with expected target area
- CAS aircrew read-back or confirm digitally Line 4 (elev), Line 6 (target location) and any restrictions
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Integrated Data Requirements List (IDRL) for Each Control

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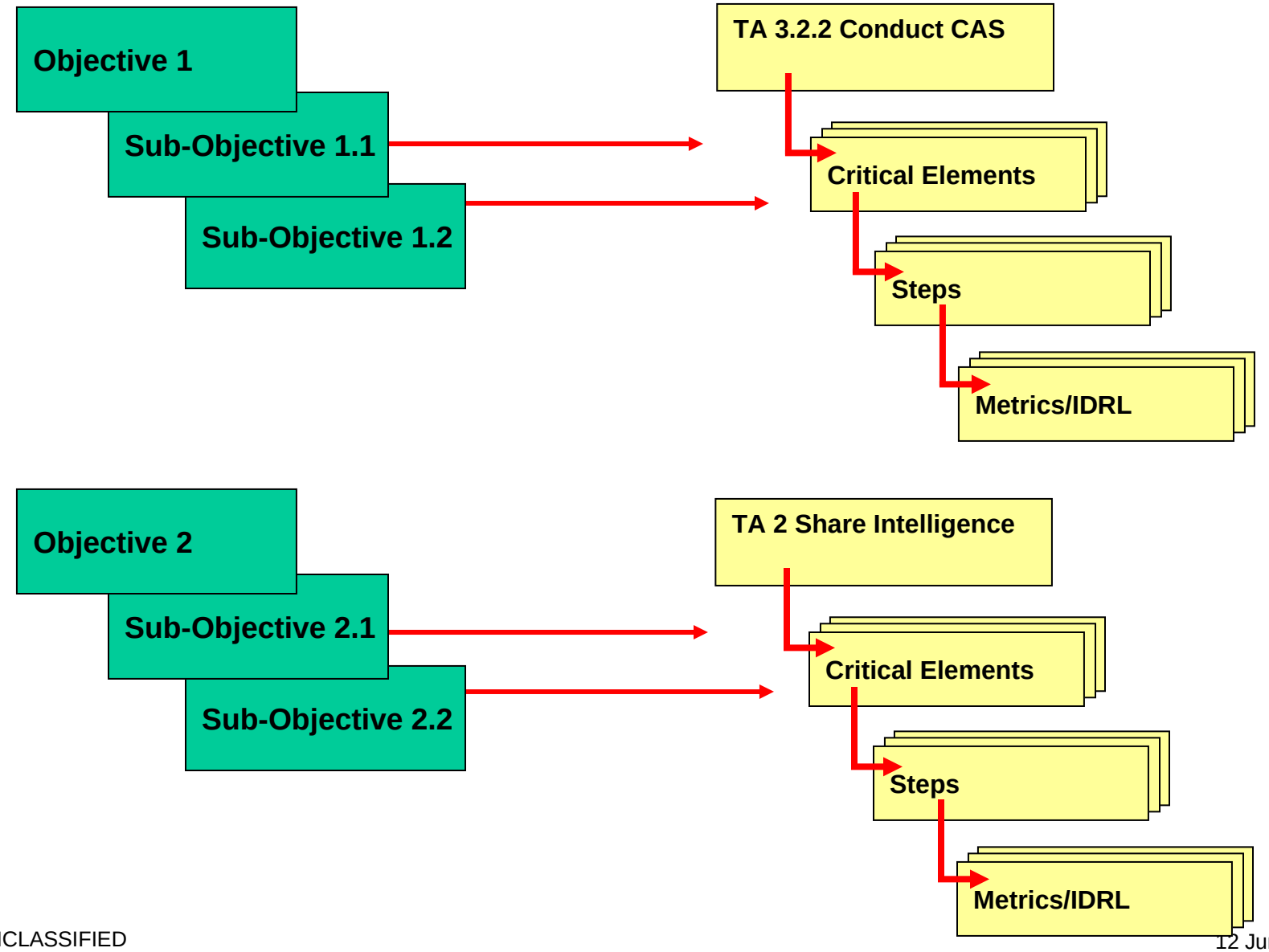
- Time that JTAC completed the 9-line
- Time that CAS aircrew verified target coordinates
- Did the JTAC provide CLEARED HOT?
- Did the CAS aircraft engage the correct target?
- ...

Conceptual Model, Metrics and IDRL can grow iteratively with input/feedback from exercises, lessons learned, etc.

Notional Assessment Against Multiple UJTs



Conclusion

- The use of conceptual models that involve UJTs amplified with JTAs and DoDAF OV/SVs provide a powerful tool for development of reusable assessment plan templates
- Should have recognition by DoD C/S/A
- JFIIT way-ahead: focus on enhancing all joint fires related UJTs with JTA/OV/SVs

Joint Fires Integration and Interoperability Team (JFIIT)

104 Biscayne Rd., Bldg 637

Eglin AFB, FL 32542
DSN: 872-6700

Commercial: 850-882-6700
https://jfiit.eglin.af.mil

John Anderson, X7518
john.anderson3.ctr@eglin.af.mil